

REMARKS

Support for Claim Amendments

The amendment to subparagraph (c) of claim 1 is supported at page 17 lines 7-9 of the specification.

The amendment to claim 6 is supported at page 7 lines 12-16 of the specification.

Regarding the Rejections under 35 USC §112, second paragraph

The rejection of claim 1 is overcome by the amendment to subparagraph (a) of that claim. No change in the scope of claim 1 is intended by the amendment to subparagraph (a).

Without admitting the correctness of the rejection of claim 13, that claim has been canceled to remove the basis for rejection.

Again without admitting the correctness of the rejection, claim 19 has been amended to remove the language that gave rise to the §112, second paragraph rejection of that claim.

Regarding the Rejections of claims 1-18 and 22 under 35 §112, first paragraph

The examiner grounds this rejection on the language "sufficient to form an aqueous dispersion" and "sufficient to polymerize the monomer(s) and chain-extend said prepolymer in a single step".

The examiner asserts that the "claim(s) contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains or with which it is most nearly connected, to make and/or use the invention". Applicants respectfully disagree with that assertion. To the contrary, the specification very clearly describes how to disperse a prepolymer/monomer mixture into an aqueous phase to form an aqueous dispersion. As stated on page 9, lines 28-30, all that is required is that the prepolymer and monomer(s) be mixed together and then into the aqueous phase. As pointed out in the same paragraph, heat may be applied if necessary to melt solid components. Viscosities that make the monomer/prepolymer mixture readily dispersible in the aqueous phase are described on page 10 lines 2-8. Suitable ranges for prepolymer/monomer ratios are provided at page 10, lines 7-9. Ratios of prepolymer/monomer mixture to aqueous phase are described in the first full paragraph on

page 10. Shearing conditions and methods to complete the droplet formation are described in the second full paragraph of page 10. Methods for dealing with gaseous monomers are described in the paragraph bridging pages 10 and 11. Aqueous phase compositions that facilitate dispersion of the prepolymer/monomer phase into droplets are described on pages 11-13 of the specification. In addition, the case contains 14 working examples. There cannot be a serious question that the specification adequately teaches one of ordinary skill to conduct the dispersion step of subparagraph (b) of claim 1.

Similarly, conditions for conducting the polymerization/chain extension reaction are described in detail at pages 13-17 of the specification and the working examples. These teachings include teachings as to reaction temperature (page 13 line 30 through page 14 line 3; agitation (page 14 lines 5-9), the use of a free radical initiator (page 14 line 10 through page 15 line 21, use of chain extenders (page 15 line 22 to page 16 line 14, sequencing of initiator addition and heating (page 16 second full paragraph), and catalyst use (last paragraph of page 16).

The rejection as applied to the claim 1 language quoted above is therefore respectfully traversed.

The §112, first paragraph rejection as applied to claim 7 is overcome by the amendment to that claim.

Regarding the Rejection over DE 4315269

Claims 1-9, 11, 13, 16, 17 and 22 stand rejected over DE 4315269. This rejection is respectfully traversed.

DE 4315269 describes a conventional process for making dispersions of hybrid polyurethane/polymer particles. Although DE 4315269 describes a very wide range of possible starting materials, the focus of DE 4315269 is to produce a water-permeable coating. To this end, the DE 4315269 uses monomers that produce a "hydrophilic effect" on the polymer, such as those listed on page 6 lines 5-17 of the English language translation. In addition, the prepolymers used in DE 4315269 are highly hydrophilic. As a result of this selection of materials, the dispersions of DE 4315269 lose particle size during the polymerization process. This is described explicitly in the paragraph bridging pages 8 and 9 of the English language specification. In Example 1, a particle size of 290 nanometers in the initial dispersion is reduced to 175 nanometers after polymerization. This is due to renucleation and new particle size formation during the polymerization process, due to the

use of very hydrophilic materials. Because many new particles are formed during the polymerization process, particle composition is not uniform.

This invention provides a process by which the particle size and composition of the particles is established during the dispersion step, and is maintained during the subsequent polymerization. Claim 1 has been amended to specify that the particle size changes by no more than 10% during the polymerization process. This is exactly contrary to the teachings of DE 4315269. The ability to avoid significant re-nucleation and new particle formation leads to several advantages—uniform, controllable particle size, more uniform particle composition, and controlled particle morphology. This provides the dispersion with more predictable and consistent properties. It also avoids viscosity problems attendant to aqueous phase polymerization, as is seen in processes like that of DE 4315269.

Regarding the Rejection over EP 849 295

EP 849 295 fails to anticipate any of claims of the present case. Claims 1-18 and 22 are all drawn to a process (or product thereof) in which a simultaneous chain extension/polymerization step is preformed. EP 849 295 describes conducting these steps sequentially. *See, e.g.*, example 1, especially the top of page 9, and example 2, especially the top of page 11. In both places, the process is clearly described as including sequential chain extension and polymerization steps.

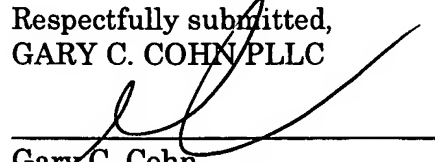
As to claims 19—21, EP 849 295 fails to disclose a dispersion with particles having a core-shell morphology. The goal of EP 849 295 is to make an interpenetrating polymer network, not a core-shell polymer particle. Although the examiner takes the position that compositions described in EP 849 295 “inherently produce” core/shell particles, the Examiner has stated no basis for the conclusion other than his own speculation about what might be formed in the EP 849 295 process. The rejection of application claims cannot be based merely on speculation, particularly in a case like presented here in which the reference describes making interpenetrating network polymers, not core/shell particles.

If the Examiner persists in making this rejection, he is requested to clearly state the basis in the references upon which he relies on to support the speculation that the process of EP 849 295 would inherently form a core/shell particle morphology.

Conclusion

The §112 second paragraph rejections have been overcome by the amendments to the claims. The §112 first paragraph rejections, and the art rejection have been shown to be improper. The case is now believed to be in condition for allowance, and a notice to that effect is respectfully requested. The undersigned is available by telephone if a call would advance prosecution.

Respectfully submitted,
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